

REMARKS

In the Office Action, the Examiner rejected claims 1-18 and 37-44. By the present Response, Applicants have amended claims 1, 3, 5, 37, 39, and 41 and canceled claims 2, 4, 38, and 40. Upon entry of the amendments, claims 1, 3, 5-18, 37, 39, and 41-44 will remain pending in the present patent application. Reconsideration and allowance of all pending claims are requested.

Rejections Under 35 U.S.C. § 102

The Examiner rejected claims 1-3, 6, 10, 37-39, and 42 under 35 U.S.C. § 102(b) as being anticipated by International Publication No. WO 02/069,412 ("Buckley"). Of these, claims 1 and 37 are independent. All of these claims are believed to be clearly patentable for at least the reasons summarized below.

Legal Precedent and Guidelines

Anticipation under section 102 can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 U.S.P.Q. 773 (Fed. Cir. 1985). For a prior art reference to anticipate under section 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). To maintain a proper rejection under section 102, a single reference must teach each and every limitation of the rejected claim. *Atlas Powder v. E.I. du Pont*, 750 F.2d 1569 (Fed. Cir. 1984). Accordingly, the Applicants need only point to a single element not found in the cited reference to demonstrate that the cited reference fails to anticipate the claimed subject matter. The prior art reference also must show the *identical* invention "*in as complete detail as contained in the ... claim*" to support a *prima facie* case of anticipation. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989).

Independent Claims 1 and 37

Buckley does not anticipate Applicants' independent claims 1 and 37 under 35 U.S.C. § 102 because every element of the claimed invention is not shown in Buckley. Specifically, independent claims 1 and 37 both recite, among other things, an electrode comprising (a) a first layer comprising at least a halide compound of at least a metal selected from the group consisting of sodium and potassium and (b) a second layer comprising an electrically conducting material. Buckley does not teach or suggest a first layer comprising at least a halide compound of at least a *metal selected from the group consisting of sodium and potassium*, as recited by independent claims 1 and 37. Rather, Buckley teaches only an electrode comprising a first layer of *lithium fluoride* 16 and a second layer of calcium 15, as noted by the Examiner. Office Action, page 2. More generally, Buckley merely teaches "a layer of lithium fluoride (LiF) or other metal halide" as the first layer of an electrode. See Buckley, page 4. Therefore, at most, Buckley teaches a halide compound of *lithium*, specifically, and not a halide compound of at least a *metal selected from the group consisting of sodium and potassium*, as recited by independent claims 1 and 37. Lithium is clearly not a part of the group consisting of sodium and potassium. To aid the Examiner, Applicants have provided a simplified sketch of both the recited elements in independent claims 1 and 37 and the Buckley reference to illustrate the differences.

First layer -- Halide compound of metal from grouping consisting of Sodium and Potassium
Second layer -- Electrically Conducting Material
Electronically Active Material
First Electrode

Independent Claims 1 and 37

First layer -- Lithium Fluoride or other metal halide (16)
Second layer -- Calcium (15)
Electroluminescent polymer (14)
Anode (12)

Buckley Reference

Moreover, Applicants respectfully remind the Examiner that the "[t]he transitional phrase 'consisting of' *excludes* any element, step, or ingredient not specified in the claim." See M.P.E.P. § 2111.03. Compared to the transitional phrase "comprising," the

transitional phrase “consisting of” closes the claim to the inclusion of *only* the materials listed in the claim. *See id.*

Applicants would like to note that independent claim 1 was amended by incorporating subject matter previously recited in dependent claim 4. Similarly, independent claim 37 was amended by incorporating subject matter previously recited in dependent claim 40. In the Office Action, dependent claims 4 and 40 were actually rejected by the Examiner under U.S.C. 103(a) as being obvious over Buckley using Duggal et al, Applied Physics Letters, vol. 80, no. 19 (“Duggal”) as a reference. However, as will be discussed in further detail below, Duggal does not obviate the deficiencies of Buckley.

Absent some showing that the recited subject matter is present in Buckley, no *prima facie* case of anticipation based on Buckley exists for independent claims 1 and 37 or their dependent claims.

Rejections Under 35 U.S.C. § 103

The Examiner also rejected claims 4, 5, 7-9, 11-18, 40, 41, 43, and 44 under 35 U.S.C. § 103(a) as being obvious over Buckley. Of these, claim 18 is independent. All of these claims are believed to be clearly patentable for at least the reasons summarized below.

Legal Precedent and Guidelines

The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). Accordingly, to establish a *prima facie* case, the Examiner

must not only show that the combination includes *all* of the claimed elements, but also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985). When prior art references require a selected combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gained from the invention itself, i.e., something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination. *Uniroyal Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988). One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

Independent Claim 18

As discussed above with respect to independent claims 1 and 37, Buckley does not teach or suggest a first layer comprising at least a halide compound of at least a *metal selected from the group consisting of sodium and potassium*. In the Office Action, the Examiner recognized that Buckley does not disclose “the first layer of the second electrode comprises a fluoride compound of an alkali metal selected from the group consisting of sodium and potassium, the second layer comprises aluminum and the organic light emitting material comprises polyfluorene.” Office Action, page 5. Therefore, the Examiner noted that Buckley fails to disclose not just one, but *three* of the main elements recited in independent claim 18.

Rather, the Examiner merely stated that “[i]t would have been obvious to one of ordinary skill in the art to form the first layer of the second electrode compris[ing] a fluoride compound of an alkali metal selected from the group consisting of sodium and potassium, and the second layer compris[ing] aluminum in order to enhance the external efficiency of the EL device.” *Id.* The Examiner then cited the right column on page 3470 of Duggal as support for this “well known position.”

However, Applicants respectfully assert that in the embodiment disclosed in Duggal, the second layer of aluminum is not *disposed between the first layer and the organic light-emitting material of the electronic device*, as also recited in independent claim 18. Rather, the relevant passages in Duggal read, “[a] cathode consisting of 4 nm of NaF followed by 200 nm of Al was then thermally evaporated atop the blue LEP [light-emitting polymer].” Duggal, page 3470. To aid the Examiner, Applicants have again provided a simplified sketch of both the recited elements in independent claim 18 and the Duggal reference to illustrate the differences.

First layer – Halide compound of metal from grouping consisting of Sodium and Potassium
Second layer – Electrically Conducting Material
Electronically Active Material

Independent Claim 18

First layer – Aluminum
Second layer – Sodium Fluoride
Blue light-emitting polymer

Duggal Reference

Therefore, Duggal does not obviate the deficiencies of Buckley. Specifically, Duggal does not teach or suggest a second electrode comprising a first layer comprising at least a fluoride compound and a second layer comprising aluminum, wherein the second layer is disposed between the first layer and the organic light-emitting material of the electronic device, as recited by independent claim 18. Moreover, Applicants submit that it would not have been obvious to one of ordinary skill in the art to alter the structures specifically taught by Buckley and Duggal. There is no suggestion in either Buckley or Duggal that it would even be possible, much less lead to successful results, to first form a layer of aluminum atop the light-emitting polymer followed by a layer of sodium fluoride. Rather, the reverse order is specifically disclosed in Duggal.

Accordingly, Applicants respectfully request withdrawal of the rejection of independent claim 18 (and the claims depending therefrom) under 35 U.S.C. § 103 based on Buckley.

The Remaining Dependent Claims

Claims 4, 5, 7-9, 11-17, 40, 41, 43, and 44 depend directly or indirectly from independent claims 1 and 37, discussed in detail above. Accordingly, Applicants submit that claims 4, 5, 7-9, 11-17, 40, 41, 43, and 44 are allowable by virtue of their dependency from an allowable base claim. Applicants also submit that the dependent claims are further allowable by virtue of the subject matter they separately recite. Thus, it is respectfully requested that the rejection of claims 4, 5, 7-9, 11-17, 40, 41, 43, and 44 under 35 U.S.C. §103 be withdrawn.

Conclusion

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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